

Docket No.: TER-02P0020

MAIL STOP: APPEAL BRIEF-PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Patent Appeals and Interferences

Applic. No.	:	10/727,753	Confirmation No.:	7612
Inventor	:	Johann Meseth		
Filed	:	December 4, 2003		
Title	:	Containment of a Nuclear Power Plant		
TC/A.U.	:	3663		
Examiner	:	Daniel L. Greene, Jr.		
Customer No.	:	24131		

Hon. Commissioner for Patents
Alexandria, VA 22313-1450

BRIEF ON APPEAL

Sir:

This is an appeal from the final rejection in the Office action dated June 14, 2007, finally rejecting claims 1 and 3 - 5.

Appellants submit this *Brief on Appeal* in triplicate, including payment in the amount of \$510.00 to cover the fee for filing the *Brief on Appeal*.

Real Party in Interest:

This application is assigned to Areva NP GmbH (formerly Framatome ANP GmbH) of Erlangen, Germany, as evidenced by Reel/Frame Nos. 019028/0395. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 1 and 3 - 5 are rejected and are under appeal.

Status of Amendments:

No claims were amended after the final Office action.

Summary of the Claimed Subject Matter:

As stated in the first paragraph on page 1 of the specification of the instant application. The invention lies in the nuclear technology field and pertains, more specifically, to a containment vessel in a nuclear power installation.

The subject matter of each independent claim is described in the specification of the instant application. Examples explaining the subject matter defined in each of

the independent claims, referring to the specification by page and line numbers, and to the drawings, are given below.

Independent device claim 1 recites a containment (*Fig. 1, ref. # 10, page 9, line 17*) of a nuclear power plant, comprising:

a containment structure (*Fig. 1, ref. # 10, page 9, line 17*) having formed therein a pressure chamber (*Fig. 1, ref. # 18, page 9, lines 21-22*) and a condensation chamber (*Fig. 1 and 2, ref. # 14, page 9, lines 17-18*) with a base, said condensation chamber (*Fig. 1 and 2, ref. # 14, page 9, lines 17-18*) having a cooling liquid (*Fig. 1 and 2, ref. # 20, page 9, line 26*) therein, the cooling liquid (*Fig. 1 and 2, ref. # 20, page 9, line 26*) having a surface (*Fig. 1 and 2, ref. # 22, page 10, line 1*) defining a horizontal;

a vertical condensation tube (*Fig. 1 and 2, ref. # 28 and 28a, page 10, lines 14-15*) having an upper end communicating with said pressure chamber (*Fig. 1, ref. # 18, page 9, lines 21-22*) and a lower end immersed in the cooling liquid (*Fig. 1 and 2, ref. # 20, page 9, line 26*) in said condensation chamber (*Fig. 1 and 2, ref. # 14, page 9, lines 17-18*);

said lower end of said condensation tube (*Fig. 1 and 2, ref. # 28 and 28a, page 10, lines 14-15*) being formed with an elbow (*Fig. 2, ref. # 28c, page 14, lines 8-9*) leading into an outlet nozzle (*Fig. 2, ref. # 28d, page 14, line 15*);

said elbow (*Fig. 2, ref. # 28c, page 14, lines 8-9*) having an elbow angle (*Fig. 2, ref. # 28e, page 14, lines 9-10*) causing a lower end of said elbow (*Fig. 2, ref. # 28c,*

page 14, lines 8-9) to be immersed obliquely with respect to the horizontal; and

said outlet nozzle (*Fig. 2, ref. # 28d, page 14, line 15*) of said condensation tube (*Fig. 1 and 2, ref. # 28 and 28a, page 10, lines 14-15*) being formed by a tube section having a beveled end (*Fig. 1 and 2, page 14, lines 16-19*) defining an outlet opening directed towards the surface (*Fig. 1 and 2, ref. # 22, page 10, line 1*) defining the horizontal.

Grounds of Rejection to be Reviewed on Appeal

1. Whether or not claims 1 and 5 are obvious over Krebs Figure 4 in view of U.S. Patent 4,986,956 to Garabedian under 35 U.S.C. § 103.
2. Whether or not claims 3 and 4 are obvious over Krebs Figure 4 in view of U.S. Patent 4,986,956 to Garabedian and further in view of either John et al. ("Introduction to Fluid Mechanics," Second Edition) (hereinafter "John") or Nayyer ("Piping Handbook," Seventh Edition) under 35 U.S.C. § 103.

Argument:

Whether or not claim 1 is obvious over Krebs Figure 4 in view of Garabedian under 35 U.S.C. §103:

Claim 1 is not obvious over Krebs Figure 4 in view of Garabedian under 35 U.S.C. §103.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, *inter alia*:

the outlet nozzle of the condensation tube being formed by a tube section having a beveled end defining an outlet opening directed towards the surface defining the horizontal.

The Krebs reference discloses a containment having a vent pipe and a pressure suppression pool. Krebs discloses the vent pipe has an opening in the pressure suppression pool that is directed away from the surface of the liquid in the pool. Krebs does not disclose that the open end of the vent pipe is directed toward a surface of the coolant.

On page 3 of the final Office action November 29, 2005, the Examiner correctly stated that Krebs does not disclose the specific geometry of the outlet nozzle as required by the claims of the instant application.

The Garabedian reference discloses containment having a downcomer line (14). The downcomer line (14) has a termination end (22). Garabedian discloses that the termination end (22) is directed away from the surface of the water in the suppression tank (12). Garabedian does not disclose that the termination end of the downcomer pipe is directed toward a surface of the coolant.

It is a requirement for a *prima facie* case of obviousness, that the prior art references must teach or suggest all the claim limitations.

The references do not show or suggest the outlet nozzle of the condensation tube being formed by a tube section having a beveled end defining an outlet opening directed towards the surface defining the horizontal, as recited in claim 1 of the instant application.

The Krebs reference discloses that the vent pipe has an opening in the pressure suppression pool that is directed away from the surface of the liquid in the pool. Krebs does not disclose that the pipe opening is directed towards the surface of the coolant. This is contrary to the invention of the instant application as claimed, in which the outlet nozzle of the condensation tube is formed by a tube section having a beveled end defining an outlet opening directed towards the surface defining the horizontal.

The Garabedian discloses that the termination end of a downcomer lines is directed away from the surface of the water in the suppression tank. Garabedian does not disclose that a termination end is directed towards the surface of the coolant. This is contrary to the invention of the instant application as claimed, in which the outlet nozzle of the condensation tube is formed by a tube section having a beveled end defining an outlet opening directed towards the surface defining the horizontal.

The references applied by the Examiner **do not** teach or suggest all the claim limitations. Therefore, it is believed that the Examiner has not produced a *prima facie* case of obviousness.

While the Garabedian reference may disclose outlet nozzles with slanted outlet surfaces, where pulsed pressure or the like, generated by exiting steam are to be eliminated. It is pointed out that the slanted construction of the nozzle according to Garabedian is specifically configured to the geometries disclosed in Garabedian and to the media treated therein. In Garabedian, the elimination of pressure disturbances or the like by the slanted construction disclosed therein principally only plays a role in the specific type of steam inlet disclosed therein. That being a steam inlet in which the steam inlet occurs by overflow pipes that **are directed downward**. Garabedian explicitly discloses this, in particular because the system parameters disclosed therein are configured to the precise geometry of the overflow pipes disclosed therein (pipes without a bend at their exit).

Therefore, it is appellant's position that Garabedian discloses, to a person of ordinary skill in the art, that the overflow geometry provided therein is configured specifically for the respective system, where the respective system dynamic is critically dependent upon the geometries of the components used in the system. Accordingly, they cannot be arbitrarily transferred to different systems. Therefore, there is no motivation for a person of ordinary skill in the art to use the types of the outlet openings disclosed by Garabedian for use in different systems, in which a different flow guidance of the overflow pieces is provided. Contrary to the Examiner's allegation, appellant particularly and absolutely believes that the

pressure fluctuations and pulse, which are problematic for the system according to the reference Garabedian, occur only as a result of the overflow lines being directed vertically downward. They would not play a role in an alternative system, such as for example the system disclosed in Krebs. Therefore, there is no motivation for a person of ordinary skill in the art to modify Krebs based on the disclosure of Garabedian.

Moreover, the result achieved by the present invention, i.e. the inlet of steam particularly low in turbulences into the condensation chamber, can exactly be achieved by the construction of the outlet nozzle in relation to the elbow piece connected upstream thereof. In other words, it is exactly the combination of these two elements, which guarantees the desired results of a particularly good-natured inlet of the steam into the condensation fluid. Disclosure of such a behavior intentionally induced by the geometry suitably chosen during the overflowing of the steam is not provided in Garabedian or Krebs individually or in a combination thereof.

Furthermore, as explained several times to the Examiner, a particularly careful and advantageous introduction of the medium is achievable in view of the flow conditions with the targeted inclination of the inlet tube in accordance with the present invention, wherein the longer flange of the slanted inlet tube extends along the underside thereof. Particularly, in the configuration as claimed, the medium is introduced via the exit surface of the inlet tube, the surface normal of which is in an upward direction toward the surface of the liquid. This is correctly acknowledged by the Examiner and is shown in the figure labeled "Mirror of Instant App. Fig. 1", on

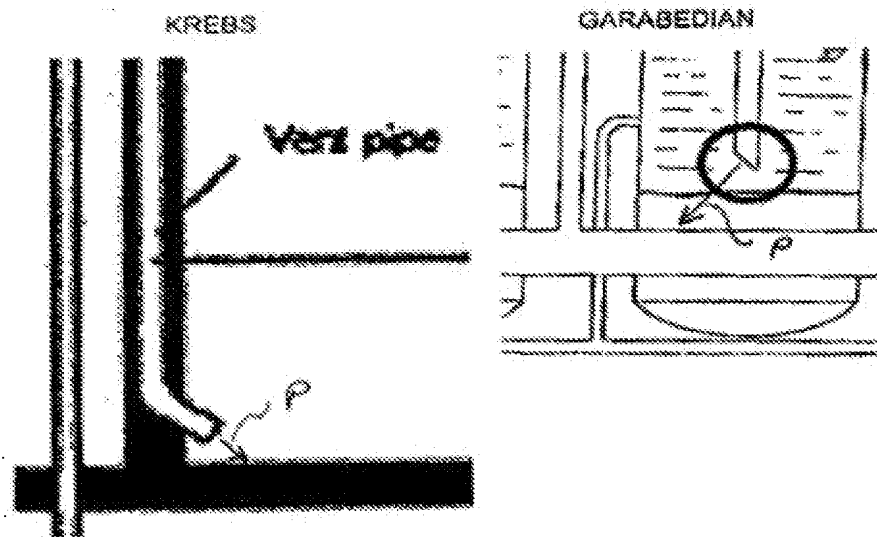
top of page 4 of the final Office action dated June 16, 2007, by the arrow illustrated in the figure.

On page 3 of the final Office action dated June 14, 2007, the Examiner alleges that “the combination of Krebs and Garabedian does indeed disclose a tube section having a beveled end defining an outlet opening directed towards the surface defining the horizontal as shown below.”

The Examiner is in error. Particularly, **both** Krebs and Garabedian disclose an inlet tube, the exit surface of which – identified by the surface normal – causes the flow medium to **exit in a downward direction away from the surface of the liquid**.

This is illustrated by the arrows P in the marked-up copy of the Figs. of page 3 of the final Office action dated June 16, 2007, provided below. As is easily seen in this illustration, Krebs and Garabedian disclose common features regarding the flow guidance of the introduced medium. Namely, that in both cases the medium is introduced **in the direction toward the bottom of the vessel**. As is clear to a person of ordinary skill in the art, an essential criterion of interpretation for the plant in its entirety is the actual flow guidance when introducing the medium, specifically, the dynamics during the mix-up of the media as a consequence of the introduction. Accordingly, Garabedian and Krebs disclose one and the same concept with regard to the flow guidance during the introduction of the medium. Namely, that the introduction of the medium is in the direction toward the bottom of the vessel. Therefore, there is no motivation, teaching, or suggestion for a person of ordinary skill in the art to modify Krebs in view of Garabedian to introduce the medium in an upward direction instead of the downward direction. In fact, because both Krebs and

Garabedian disclose that the introduction of the medium is in the direction toward the bottom of the vessel, **both Krebs and Garabedian explicitly teach away from introducing the medium an upward direction toward the surface**. Accordingly, the Examiner's allegation with respect to the combination of Krebs and Garabedian, is not accurate.



Moreover, if a person of ordinary skill in the art, were to combine Krebs and Garabedian and alter the pipe of Krebs with the bevel of Garabedian. It would necessarily follow that the pipe of Krebs would be **beveled in a direction towards the bottom of the vessel**.

Also, the United States Supreme Court has recently reaffirmed Graham v. John Deere, 383 U.S. 1 (1966), as the leading decision with regard to issues of obviousness under 35 U.S.C. § 103. KSR Int'l Co. v. Teleflex, Inc., No. 04-1350 (U.S. Apr. 30, 2007). According to Graham, it is incumbent upon the decision maker

to satisfy four prongs of a cumulative test, namely:

- (a) determine the scope and contents of the prior art;
- (b) ascertain the differences between the prior art and the claims in issue;
- (c) resolve the level of ordinary skill in the pertinent art; and
- (d) evaluate evidence of secondary consideration.

In addition, the Supreme Court validated the utilization of the "teaching, suggestion, or motivation" test in reviewing the question of obviousness, but rejected a stringent application of the analysis. Rather, the Court recognized that a showing of "teaching, suggestion, or motivation" to combine the prior art to meet the claimed subject matter could provide a helpful insight in determining whether the claimed subject matter is obvious under 35 U.S.C. § 103(a).

While the Court rejected a rigid application of the Teaching – Suggestion – Motivation (TSM) test, which essentially required the patent examiner to point to some teaching, suggestion, or motivation to combine the various teachings and/or elements of the prior art, the requirement for some proof of motivation has been retained. KSR did not do away with the requirement that the analysis supporting a rejection under 35 U.S.C. § 103(a) should be made explicit, and that it was "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements"; in the manner claimed. Further, it follows from the KSR decision that the combination should not be arbitrary but should be based on an apparent reason and the reason should be explicitly stated – the combination, as stated by the Court, should stem from the application of "common sense."

As seen from the above-given remarks, appellant submits that the Examiner has not provided a convincing reason why one of ordinary skill in the art would have been led to modify the Krebs reference as suggested by the Examiner. Appellant respectfully believes that any teaching, suggestion, or incentive possibly derived from the prior art is only present with hindsight judgment in view of the instant application. “It is impermissible, however, simply to engage in a hindsight reconstruction of the claimed invention, using the applicant’s structure as a template and selecting elements from references to fill the gaps. . . . The references themselves must provide some teaching whereby the applicant’s combination would have been obvious.” In re Gorman, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991) (emphasis added). Here, no such teaching is present in the cited reference or in the knowledge of a person of ordinary skill in the art.

In the advisory action, the Examiner alleges that “regarding applicants allegations of Hindsight, the Examiner has also shown that the motivations are found within the references themselves.”

As seen from the above-given arguments, this is simply not true. Therefore, the honorable Board is kindly requested to disregard the Examiner’s allegations pertaining to the motivations being found within the references.

As seen from the above-given remarks, claim 1 is not obvious over Krebs in view of Garabedian.

Since claim 1 is allowable over Krebs in view of Garabedian, dependent claim 5 is allowable over Krebs in view of Garabedian as well.

Whether or not claims 3 and 4 are obvious over Krebs Figure 4 in view of Garabedian and further in view of either John or Nayyer under 35 U.S.C. §103:

Claims 3 and 4 are not obvious over Krebs Figure 4 in view of Garabedian and further in view of either John or Nayyer under 35 U.S.C. §103.

Neither John nor Nayyer make up for the deficiencies of Krebs and Garabedian. Since claim 1 is allowable, dependent claims 3 and 4 are allowable as well.

Based on the above-given remarks, the honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

If an extension of time is required for this submission, petition for extension is herewith made. Any fees due should be charged to Deposit Account No. 12-1099 of Lerner Greenberg Sterner LLP.

Respectfully submitted,

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AKD/lq/bb

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Claims Appendix:

1. A containment of a nuclear power plant, comprising:

a containment structure having formed therein a pressure chamber and a condensation chamber with a base, said condensation chamber having a cooling liquid therein, the cooling liquid having a surface defining a horizontal;

a vertical condensation tube having an upper end communicating with said pressure chamber and a lower end immersed in the cooling liquid in said condensation chamber;

said lower end of said condensation tube being formed with an elbow leading into an outlet nozzle;

said elbow having an elbow angle causing a lower end of said elbow to be immersed obliquely with respect to the horizontal; and

said outlet nozzle of said condensation tube being formed by a tube section having a beveled end defining an outlet opening directed towards the surface defining the horizontal.

3. The containment according to claim 1, wherein said elbow angle of said elbow of said condensation tube is between 70° and 85°, whereby said lower end of said elbow is immersed in the cooling liquid in said condensation chamber with an oblique downward inclination.

4. The containment according to claim 3, wherein said elbow angle of said elbow is 82°.

5. The containment according to claim 1, wherein a portion of said condensation tube is embedded in a wall of said condensation chamber.

Evidence Appendix:

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or any other evidence has been entered by the Examiner and relied upon by appellant in the appeal.

Related Proceedings Appendix:

No prior or pending appeals, interferences or judicial proceedings are in existence which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal. Accordingly, no copies of decisions rendered by a court or the Board are available.